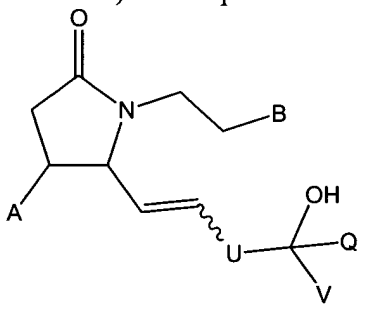
Amendments To The Claims

This listing of claims will replace all prior versions of the claims and listing of the claims in the application:

Listing of Claims:

1. **(Previously Presented)** A compound of the following Formula I:



I

wherein

A is hydrogen or hydroxy;

B is selected from optionally substituted carbocyclic aryl and optionally substituted heteroalicyclic having from 3 to 8 ring atoms and at least 1 N, O or S ring atom or a heteroaromatic group having a single ring with 5 or 6 ring atoms and at least one N, O or S ring atom;

U is $(CH_2)_p$ wherein p is selected from 0, 1 and 2;

V and Q are each independently hydrogen, optionally substituted alkenyl, optionally substituted alkynyl, and $-CR^1R^2-W$, wherein R^1 and R^2 are C_1-C_6 alkyl; or R^1 and R^2 can form an C_3-C_6 cycloalkyl with the carbon they are attached to;

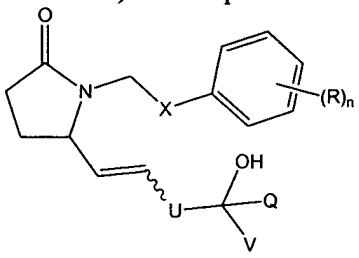
W is selected from hydrogen, C_1-C_6 alkyl, C_3-C_6 cycloalkyl, C_3-C_6 cycloalkyl C_1-C_6 alkyl, aryl and heteroaryl; with at least one of V and Q being other than hydrogen; and pharmaceutically acceptable salts thereof.

2. **(Original)** A compound of claim 1 wherein A is hydrogen.

3. **(Previously Presented)** A compound of claim 1 wherein B is optionally substituted carbocyclic aryl.

4. **(Previously Presented)** A compound of claim 1 wherein B is optionally substituted phenyl.

5. **(Previously Presented)** A compound of Formula II:



II

wherein R is C(=O)Z where Z is selected from hydrogen, hydroxy, optionally substituted alkoxy and optionally substituted alkyl; or R is amino or optionally substituted alkylamine;

X is selected from oxygen and carbon;

n is an integer selected from 0, 1, 2, 3, 4 and 5;

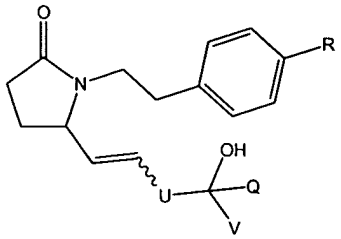
U is $(CH_2)_p$ wherein p is selected from 0, 1 and 2;

V and Q are each independently selected from hydrogen, optionally substituted alkenyl, optionally substituted alkynyl, and $-CR^1R^2-W$, wherein R^1 and R^2 are C_1-C_6 alkyl; or R^1 and R^2 can form an C_3-C_6 cycloalkyl with the carbon they are attached to;

W is selected from hydrogen, C_1-C_6 alkyl, C_3-C_6 cycloalkyl, C_3-C_6 cycloalkyl C_1-C_6 alkyl, aryl and heteroaryl; with at least one of V and Q being other than hydrogen; and pharmaceutically acceptable salts thereof.

6. **(Original)** A compound of claim 5 wherein n is 1 or 2.

7. **(Previously Presented)** A compound of claim 1 having the following Formula III:



III

wherein R is C(=O)Z where Z is selected from hydrogen, hydroxy, optionally substituted alkoxy and optionally substituted alkyl; or R is amino or optionally substituted alkylamine;

U is $(CH_2)_p$ wherein p is selected from 0, 1 and 2;

V and Q are each independently selected from hydrogen, optionally substituted alkenyl, optionally substituted alkynyl, and $-CR^1R^2-W$, wherein R^1 and R^2 are C_1-C_6 alkyl; or R^1 and R^2 can form an C_3-C_6 cycloalkyl with the carbon they are attached to;

W is selected from hydrogen, C_1-C_6 alkyl, C_3-C_6 cycloalkyl, C_3-C_6 cycloalkyl C_1-C_6 alkyl, aryl and heteroaryl; with at least one of V and Q being other than hydrogen; and pharmaceutically acceptable salts thereof.

8. **(Cancelled)**.

9. **(Previously Presented)** A compound according to claims 1, 5, or 7 wherein p is zero.

10. **(Cancelled)**.

11. **(Previously Presented)** A compound of claim 5 wherein n is 1 and R is a *para*-substituent.

12. **(Previously Presented)** A compound of claim 5 wherein R is -C(O)OH.

13. **(Cancelled)**.

14. **(Previously Presented)** A compound of claim 5 wherein R is -C(O)OH being in a "para" position whereby n is 1; Q is CR^1R^2-W, wherein R^1 and R^2 are C_1-C_6 alkyl; or R^1 and R^2 can form an C_3-C_6 cycloalkyl with the carbon they are attached to; W is selected from hydrogen, C_1-C_6 alkyl, C_2-C_6 alkenyl, C_3-C_6 cycloalkyl, C_3-C_6 cycloalkyl C_1-C_6 alkyl, aryl, heteroaryl and aryl C_1-C_6 alkyl; and pharmaceutically acceptable salts thereof.

15. **(Previously Presented)** A compound of claim 5 wherein R is -C(O)OH is in a "para" position; n is 1; Q is CR^1R^2-W, wherein R^1 and R^2 are independently selected from C_1-C_6 alkyl; or R^1 and R^2 can form a C_3-C_6 cycloalkyl with the carbon they are attached to; W is selected from hydrogen, C_1-C_6 alkyl, C_3-C_6 cycloalkyl C_1-C_6 alkyl, and aryl; and pharmaceutically acceptable salts thereof.

16. **(Previously Presented)** A compound of claim 1 that is selected from the group consisting of:

4-(2-{(2*R*)-2-[(1*E*,4*R*)-4-hydroxy-4-(1-propylcyclobutyl)but-1-enyl]-5-oxopyrrolidin-1-yl}ethyl)benzoic acid;

4-[2-((2*R*)-2-{(1*E*,4*R*)-4-[1-(cyclopropylmethyl)cyclobutyl]-4-hydroxybut-1-enyl}-5-oxopyrrolidin-1-yl)ethyl]benzoic acid;

4-(2-{(2*R*)-2-[(1*E*,4*R*)-4-(1-ethylcyclobutyl)-4-hydroxybut-1-enyl]-5-oxopyrrolidin-1-yl}ethyl)benzoic acid;

4-(2-{(2*R*)-2-[(1*E*,3*S*)-3-hydroxy-4,4-dimethyloct-1-enyl]-5-oxopyrrolidin-1-yl}ethyl)benzoic acid;

4-[2-((2R)-2-{(1E,3S)-3-[1-(cyclopropylmethyl)cyclobutyl]-3-hydroxyprop-1-enyl}-5-oxopyrrolidin-1-yl)ethyl]benzoic acid;

4-[2-((2R)-2-{(1E,3R)-3-[1-(cyclopropylmethyl)cyclobutyl]-3-hydroxyprop-1-enyl}-5-oxopyrrolidin-1-yl)ethyl]benzoic acid;

4-(2-{(2S)-2-[(3S)-3-(1-butylcyclobutyl)-3-hydroxypropyl]-5-oxopyrrolidin-1-yl}ethyl)benzoic acid;

4-(2-{(2S)-2-[(3R)-3-(1-butylcyclobutyl)-3-hydroxypropyl]-5-oxopyrrolidin-1-yl}ethyl)benzoic acid;

4-(2-{(2R)-2-[(1E,3R)-3-hydroxy-3-(1-phenylcyclopentyl)prop-1-enyl]-5-oxopyrrolidin-1-yl}ethyl)benzoic acid;

4-(2-{(2R)-2-[(1E,3S)-3-hydroxy-3-(1-phenylcyclopentyl)prop-1-enyl]-5-oxopyrrolidin-1-yl}ethyl)benzoic acid;

4-[2-((2R)-2-{(1E,3R)-3-[1-(4-chlorophenyl)cyclopropyl]-3-hydroxyprop-1-enyl}-5-oxopyrrolidin-1-yl)ethyl]benzoic acid;

4-[2-((2R)-2-{(1E,3S)-3-[1-(4-chlorophenyl)cyclobutyl]-3-hydroxyprop-1-enyl}-5-oxopyrrolidin-1-yl)ethyl]benzoic acid

4-[2-((2R)-2-{(1E,3R)-3-[1-(4-chlorophenyl)cyclobutyl]-3-hydroxyprop-1-enyl}-5-oxopyrrolidin-1-yl)ethyl]benzoic acid;

4-[2-((2R)-2-{(1E,3S)-3-[1-(4-chlorophenyl)cyclopropyl]-3-hydroxyprop-1-enyl}-5-oxopyrrolidin-1-yl)ethyl]benzoic acid;

4-[2-((2R)-2-{(1E,3S)-3-hydroxy-3-[1-(4-methylphenyl)cyclopentyl]prop-1-enyl}-5-oxopyrrolidin-1-yl)ethyl]benzoic acid;

4-[2-((2R)-2-{(1E,3R)-3-hydroxy-3-[1-(4-methylphenyl)cyclopentyl]prop-1-enyl}-5-oxopyrrolidin-1-yl)ethyl]benzoic acid;

4-[2-((2R)-2-{(1E,3S)-3-[1-(4-fluorophenyl)cyclopentyl]-3-hydroxyprop-1-enyl}-5-oxopyrrolidin-1-yl)ethyl]benzoic acid;
4-[2-((2R)-2-{(1E,3R)-3-[1-(4-fluorophenyl)cyclopentyl]-3-hydroxyprop-1-enyl}-5-oxopyrrolidin-1-yl)ethyl]benzoic acid;
4-[2-((2R)-2-{(1E,3R)-3-[1-(2-fluorophenyl)cyclopentyl]-3-hydroxyprop-1-enyl}-5-oxopyrrolidin-1-yl)ethyl]benzoic acid;
4-[2-((2R)-2-{(1E,3S)-3-[1-(2-fluorophenyl)cyclopentyl]-3-hydroxyprop-1-enyl}-5-oxopyrrolidin-1-yl)ethyl]benzoic acid;
4-[2-((2R)-2-{(1E,3S)-3-[1-(4-chlorophenyl)cyclopentyl]-3-hydroxyprop-1-enyl}-5-oxopyrrolidin-1-yl)ethyl]benzoic acid;
4-[2-((2R)-2-{(1E,3R)-3-[1-(4-chlorophenyl)cyclopentyl]-3-hydroxyprop-1-enyl}-5-oxopyrrolidin-1-yl)ethyl]benzoic acid;
4-[2-((2R)-2-{(1E,3S)-3-[1-(3-fluorophenyl)cyclopentyl]-3-hydroxyprop-1-enyl}-5-oxopyrrolidin-1-yl)ethyl]benzoic acid;
4-[2-((2R)-2-{(1E,3R)-3-[1-(3-fluorophenyl)cyclopentyl]-3-hydroxyprop-1-enyl}-5-oxopyrrolidin-1-yl)ethyl]benzoic acid;
4-[2-((2R)-2-{(1E,3S)-3-hydroxy-3-[1-(2-phenylethyl)cyclobutyl]prop-1-enyl}-5-oxopyrrolidin-1-yl)ethyl]benzoic acid;
4-[2-((2R)-2-{(1E,3R)-3-hydroxy-3-[1-(2-phenylethyl)cyclobutyl]prop-1-enyl}-5-oxopyrrolidin-1-yl)ethyl]benzoic acid;
4-(2-{(2R)-2-[(1E,3S)-3-hydroxy-3-(1-propylcyclobutyl)prop-1-enyl]-5-oxopyrrolidin-1-yl}ethyl)benzoic acid
4-(2-{(2R)-2-[(1E,3R)-3-hydroxy-3-(1-propylcyclobutyl)prop-1-enyl]-5-oxopyrrolidin-1-yl}ethyl)benzoic acid
4-(2-{(2R)-2-[(1E,3R)-3-(1-benzylcyclobutyl)-3-hydroxyprop-1-enyl]-5-oxopyrrolidin-1-yl}ethyl)benzoic acid;
4-(2-{(2R)-2-[(1E,3S)-3-(1-butylcyclobutyl)-3-hydroxyprop-1-enyl]-5-oxopyrrolidin-1-yl}ethyl)benzoic acid;
4-(2-{(2R)-2-[(1E,3R)-3-(1-butylcyclobutyl)-3-hydroxyprop-1-enyl]-5-oxopyrrolidin-1-yl}ethyl)benzoic acid;
4-(2-{(2R)-2-[(1E,3R)-3-hydroxy-4,4-dimethyloct-1-enyl]-5-oxopyrrolidin-1-yl}ethyl)benzoic acid;
4-(2-{(2R)-2-[(1E,3S)-3-hydroxy-3-(1-phenylcyclopropyl)prop-1-enyl]-5-oxopyrrolidin-1-yl}ethyl)benzoic acid; and

4-(2-{(2R)-2-[(1E,3R)-3-hydroxy-3-(1-phenylcyclopropyl)prop-1-enyl]-5-oxopyrrolidin-1-yl}ethyl)benzoic acid; and pharmaceutically acceptable salts thereof.

Claims 17-18. **(Cancelled).**

19. **(Currently Amended)** A method for treating ~~of claim 18 wherein the mammal is suffering from or susceptible to~~ asthma, comprising administering to a mammal suffering from asthma an effective amount of a compound of claim 1.

Claims 20-30. **(Cancelled).**

31. **(Currently Amended)** A method for treating ~~of claim 18 wherein the mammal is suffering from or susceptible to~~ dysmenorrhea, comprising administering to a mammal suffering from dysmenorrhea an effective amount of a compound of claim 1.

Claims 32-36. **(Cancelled).**

37. **(Currently Amended)** A method for treating ~~of claim 18 wherein the mammal is suffering from or susceptible to~~ gastric ulcers, comprising administering to a mammal suffering from gastric ulcers an effective amount of a compound of claim 1.

Claims 38-39. **(Cancelled).**

40. **(Currently Amended)** A method for treating ~~of claim 18 wherein the mammal is suffering from or susceptible to~~ erectile dysfunction, comprising administering to a mammal suffering from erectile dysfunction an effective amount of a compound of claim 1.

41. **(Currently Amended)** A method of any one of claims 19, 31, 37, or 40~~18~~ wherein the mammal is a human.

42. **(Currently Amended)** A method of claim any one of claims 19, 31, or 37~~18~~ wherein the mammal is a female.

Claim 43. **(Cancelled).**

44. **(Currently Amended)** A method for treating ~~of claim 18 wherein the female is suffering from~~ an ovulatory disorder, comprising administering to a female mammal suffering from an ovulatory disorder an effective amount of a compound of claim 1.

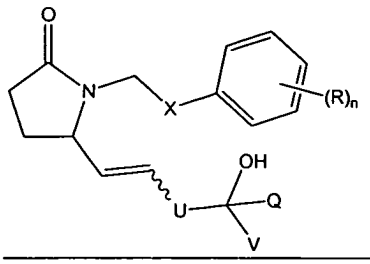
45. **(Currently Amended)** A method of any one of claims 19, 37, or 40~~18~~ wherein the mammal is a male.

Claims 46-48. **(Cancelled).**

49. **(Previously Presented)** A pharmaceutical composition comprising a pharmaceutically acceptable carrier and one or more compounds of claim 1.

50. **(Previously Presented)** A pharmaceutical composition of claim 49 wherein the compound is packaged together with instructions for use of the compound to treat preterm labor, dysmenorrhea, asthma, hypertension, infertility or a fertility disorder, sexual dysfunction, undesired blood clotting, a destructive bone disease or disorder, preeclampsia or eclampsia, an eosinophil disorder, renal dysfunction an immune deficiency disorder, dry eye, ichthyosis, elevated intraocular pressure, sleep disorder, or gastric ulcer.

51. **(Currently Amended)** A method of treating a fertility condition in a female, comprising the administration to said female a prostaglandin EP4 receptor agonist, ~~or~~ a pharmaceutical acceptable salt of said prostaglandin EP4 receptor agonist~~compound~~, or a diastereoisomeric mixture of said prostaglandin EP4 receptor agonist ~~compound~~ or salt, wherein the prostaglandin EP4 receptor agonist is selected among compounds of formula II:



II

wherein:

X is selected from oxygen and carbon;

n is an integer selected from 0, 1, 2, 3, 4 and 5;

R is C(=O)Z wherein Z is selected from hydroxy, alkoxy, alkyl and aryl; or Z is selected from amino or alkylamine such as $-NR^4R^5$ wherein R^4 and R^5 are independently selected from hydrogen and alkyl, $-NHSO_2R^3$ and $-NHC(O)R^3$ wherein R^3 is selected among C_1-C_6 alkyl and aryl;

U is $(CH_2)_p$ wherein p is an integer selected from 0, 1 and 2;

Q is $-CR^1R^2-W$, wherein R^1 and R^2 are C_1-C_6 alkyl; or R^1 and R^2 can form a C_3-C_6 cycloalkyl with the carbon they are attached to;

W is selected from hydrogen, C_1-C_6 alkyl, C_3-C_6 cycloalkyl, C_3-C_6 cycloalkyl C_1-C_6 alkyl, aryl, and heteroaryl, with at least one of V and Q being other than hydrogen; and pharmaceutically acceptable salts thereof.

52. **(Original)** A method of claim 51 wherein the condition is infertility.

53. **(Original)** A method of claim 51 wherein the condition is an ovulatory disorder.

54. **(Previously Presented)** A method of claim 51 wherein the female is undergoing an ovulation induction or ART treatments.

55. **(Cancelled)**

56. **(Currently Amended)** A method of claim 5155 wherein the prostaglandin EP4 receptor agonist is selected among compounds of formula II, wherein R is C(=O)Z wherein Z is selected from hydrogen, hydroxy, alkoxy such as –O-alkyl and alkyl; or Z is selected from amino or alkylamine such as $-NR^4R^5$ where R^4 and R^5 are independently hydrogen or alkyl, $-NHSO_2R^3$ and $-NHC(O)R^3$ wherein R^3 is selected among C_1-C_6 alkyl and aryl; U is $(CH_2)_p$ wherein p is 0; Q is $-CR^1R^2-W$, wherein R^1 and R^2 are C_1-C_6 alkyl; W is selected from C_3-C_6 cycloalkyl, aryl and heteroaryl; and pharmaceutically acceptable salts thereof.

57. **(Currently Amended)** A method of claim 5155 wherein the prostaglandin EP4 receptor agonist is selected among compounds of formula II, wherein R is C(=O)Z

wherein Z is selected from hydrogen, hydroxy, alkoxy; U is $(CH_2)_p$ wherein p is 0; and pharmaceutically acceptable salts thereof.

58. **(Currently Amended)** A method of claim 5155 wherein the prostaglandin EP4 receptor agonist is selected among compounds of formula II, wherein R is C(=O)Z wherein Z is selected from hydroxy and alkoxy; U is $(CH_2)_p$ wherein p is 0; and pharmaceutically acceptable salts thereof.

59. **(Currently Amended)** A method of claim 5155 wherein the prostaglandin EP4 receptor agonist is selected among compounds of formula II wherein R is C(=O)Z wherein Z is hydroxy; U is $(CH_2)_p$ wherein p is 0; Q is–CR^1R^2-W, wherein R^1 and R^2 are C_1-C_6 alkyl; or R^1 and R^2 can form a C_3-C_6 cycloalkyl with the carbon they are attached to; W is selected from C_1-C_6 alkyl, C_3-C_6 cycloalkyl C_1-C_6 alkyl, C_3-C_6 cycloalkyl, ~~aryl~~ and substituted phenyl; and pharmaceutically acceptable salts thereof.

60. **(Currently Amended)** A method of claim 5155 wherein the prostaglandin EP4 receptor agonist is selected from the group consisting of:
4-(2-{(2R)-2-[(1E,3R)-3-hydroxy-3-(1-phenylcyclopropyl)prop-1-enyl]-5-oxopyrrolidin-1-yl}ethyl)benzoic acid;
4-(2-{(2R)-2-[(1E,3S)-3-(1-butylcyclobutyl)-3-hydroxyprop-1-enyl]-5-oxopyrrolidin-1-yl}ethyl)benzoic acid;
4-[2-((2R)-2-{(1E,3R)-3-[1-(cyclopropylmethyl)cyclobutyl]-3-hydroxyprop-1-enyl}-5-oxopyrrolidin-1-yl)ethyl]benzoic acid;
4-(2-{(2R)-2-[(1E,3R)-3-(1-butylcyclobutyl)-3-hydroxyprop-1-enyl]-5-oxopyrrolidin-1-yl}ethyl)benzoic acid; and
4-(2-{(2R)-2-[(1E,3R)-3-hydroxy-4,4-dimethyloct-1-enyl]-5-oxopyrrolidin-1-yl}ethyl)benzoic acid; and pharmaceutically acceptable salts thereof.

Claim 61. **(Cancelled).**

62. **(Currently Amended)** A method for treating ~~of claim 61 wherein the mammal is suffering from or susceptible to~~ asthma, comprising administering to a mammal suffering from asthma an effective amount of a compound of claim 5.

Claims 63-73. **(Cancelled).**

74. **(Currently Amended)** A method for treating ~~of claim 61 wherein the mammal is suffering from or susceptible to~~ dysmenorrhea, comprising administering to a mammal suffering from dysmenorrhea an effective amount of a compound of claim 5.

Claims 75-79 **(Cancelled).**

80. **(Currently Amended)** A method for treating ~~of claim 61 wherein the mammal is suffering from or susceptible to~~ gastric ulcers, comprising administering to a mammal suffering from gastric ulcers an effective amount of a compound of claim 5.

Claims 81-82. **(Cancelled).**

83. **(Currently Amended)** A method for treating ~~of claim 61 wherein the mammal is suffering from or susceptible to~~ erectile dysfunction, comprising administering to a mammal suffering from erectile dysfunction an effective amount of a compound of claim 5.

84. **(Currently Amended)** A method of any one of claims 62, 74, 80, or 83~~61~~ wherein the mammal is a human.

85. **(Currently Amended)** A method of any one of claims 62, 74, or 80~~61~~ wherein the mammal is a female.

86. **(Cancelled).**

87. **(Currently Amended)** A method for treating ~~of claim 85 wherein the female is suffering from~~ an ovulatory disorder, comprising administering to a female mammal suffering from an ovulatory disorder an effective amount of a compound of claim 5.

88. **(Currently Amended)** A method of any one of claims 62, 80, or 83~~61~~ wherein the mammal is a male.

Claims 89. **(Cancelled).**

90. **(Previously Presented)** A pharmaceutical composition comprising a pharmaceutically acceptable carrier and one or more compounds of claim 5.

91. **(Previously Presented)** A pharmaceutical composition of claim 90 wherein the compound is packaged together with instructions for use of the compound to treat preterm labor, dysmenorrhea, asthma, hypertension, infertility or a fertility disorder, sexual dysfunction, undesired blood clotting, a destructive bone disease or disorder, preeclampsia or eclampsia, an eosinophil disorder, renal dysfunction, an immune deficiency disorder, dry eye, ichthyosis, elevated intraocular pressure, sleep disorder, or gastric ulcer.

Claims 92-94. **(Cancelled).**